THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GORDON F. PALM
and R. GEORGE HARTIG

Appeal No. 1997-0844
Application No. 08/269,979

ON BRIEF

Before JOHN D. SMITH, PAK, and WALTZ Administrative Patent Judges.

WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 18, 25 and 28, as amended subsequent to the final rejection (see the amendments dated Jan. 11, 1996, Paper No. 12, and Apr. 5, 1996, Appendix B

attached to the Brief, entered as per the Advisory Action dated Jan. 31, 1996, Paper No. 13, and the Answer, Paper No. 17, page 1, respectively). Claims 18, 25 and 28 are the only claims remaining in this application.

According to appellants, the invention is directed to a nearly neutral process water made by subjecting scrubbed wet-process vapors along with drainage water from a gypsum stack or pond to neutralizing/clarifying separation and pH-adjustment and a composite process water made from mixing this nearly neutral process water with an acid process water (Brief, page 1). Appellants state that claims 18, 25 and 28 do not stand or fall together and present specific, substantive reasons for the separate patentability of each claim (Brief, pages 4-10; see the Answer, page 2). In accordance with 37 CFR § 1.192(c)(7)(1995), we therefore consider each claim separately. The claims are reproduced and attached as an Appendix to this decision.

The examiner has relied upon the following references to support the rejections on appeal:

Zibrida	4,698,163	Oct. 6, 1987
Davister et al. (Davister)	4,777,027	Oct. 11, 1988

Claims 18 and 28 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as unpatentable over Zibrida (Answer, page 2). Claim 25 stands rejected under 35 U.S.C. § 103 as unpatentable over Davister in view of Zibrida (Answer, page 3).[1] We *affirm* the examiner's rejection of claims 18 and 28 under 35 U.S.C. §§ 102(b)/103 over Zibrida for the reasons stated in the Answer and reasons stated below. We *reverse* the examiner's rejection of claim 25 for reasons stated below.

OPINION

A. The Rejection of Claim 18

We agree with the examiner's analysis that claim 18 is recited in product-by-process format and therefore a rejection under §§ 102/103 is indicated where the prior art discloses a product that reasonably appears to be either identical with or only slightly different than the product claimed. *In re*

[1]The final rejections under the first and second paragraphs of 35 U.S.C. § 112 have been overcome by appellants' amendment dated Jan. 11, 1996, Paper No. 12, as stated in the Advisory Action dated Jan. 31, 1996, Paper No. 13. The final rejection of claim 18 under 35 U.S.C. § 103 as unpatentable over Davister in view of Zibrida has been withdrawn on page 2 of the Answer.

Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980). The patentability of the *products* defined by product-by-process claims, and *not* the processes for making them, is what must be gauged in light of the prior art. *In re Wertheim,* 541 F.2d 257, 271, 191 USPQ 90, 103 (CCPA 1976). Furthermore, the examiner bears a lesser burden of proof to establish a *prima facie* case of obviousness for product-by-process claims. Once a *prima facie* case of obviousness is established, the burden shifts to appellants to establish by convincing argument or evidence that the product claimed differs substantially from the product disclosed by the prior art. *In re Fessman,* 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974).

The examiner finds that Zibrida discloses a process for treating phosphate-containing wastewater for removing impurities therefrom by using a double neutralization process including the conditions set forth in claim 18 (Answer, pages 2-3). The examiner also finds that Zibrida teaches adding acid to the effluent to adjust the pH to a range of about 6 to about 8.5 if it is desired to discharge the effluent into the environment (Answer, page 3, citing col. 4, ll. 42-46). Accordingly, the examiner states there is no distinction

between the process water disclosed by Zibrida and the process water recited in claim 18 (Answer, page 2).

Appellants argue that the examiner has failed to recognize that Zibrida uses gypsum pond water as a source material while the process recited in claim 18 recites a source material derived from "scrubbing some of said waste gases and combining the resulting liquid with liquid drainage from the waste gypsum" (see claim 18; Brief, pages 6-7; Reply Brief, page 2). Appellants' argument is not persuasive since the source material of the process limitation in claim 18 has not been shown by convincing argument or evidence to yield a different product. As stated above, it is the product claimed, and not the process limitations, of a product-by-process claim which must be compared with the product of the prior art. The examiner has met his burden of proof by establishing that the process water produced by Zibrida, at a near neutral pH and with low amounts of phosphorus and fluorine, is reasonably identical or only slightly different than the process water of claim 18. Furthermore, as noted by the examiner on pages 4-5 of the Answer, Zibrida teaches that the source material of his process may be any phosphate-

containing wastewater of pH ranging from about 1.5 to 3 with at least about 100 ppm phosphorus and at least about 50 ppm fluorine (see Zibrida, col. 4, ll. 7-16). There is no evidence of record that the source material recited in claim 18 is different than the materials (e.g., pond water)[2] treated by Zibrida or that the process water produced in claim 18 differs substantially from the effluent produced in Zibrida.

For the foregoing reasons and those stated in the Answer, we determine that the examiner has established a *prima facie* case for anticipation/obviousness of the claimed product-by-process which has not been rebutted with convincing evidence or argument by appellants. Accordingly, the examiner's rejection of claim 18 on appeal under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as unpatentable over Zibrida is affirmed.

B. The Rejection of Claim 28

[2]Randolph, U.S. Patent No. 3,625,648, issued Dec. 7, 1971, of record in this application, discloses that it is conventional in wet process phosphoric acid processes for gypsum pond waters to contain scrubbing products of waste (fluoride-bearing) gases, of course along with liquid drainage from the waste gypsum itself (col. 1, ll. 20-23 and 47-58).

We also agree with the examiner's analysis that claim 28 contains a product-by-process format, where component (b) of claim 28 is recited in the same format as claim 18 on appeal (Answer, pages 4-6). The product claimed in claim 28 is a composite water which is a *mixture* of the process water of claim 18 and an acidic process water derived from wet-processing phosphate manufacturing (see claim 28 and the Brief, page 6, last paragraph). The examiner has applied the same rationale to claim 28 as used with claim 18, stating that "[a]cidic water is not distinguishable depending on where it comes from, absent evidence to the contrary." (Answer, page 6). The examiner has shown, from the evidence in Zibrida, that the effluent product of Zibrida (col. 4, ll. 42-46, cited at page 6 of the Answer), would have reasonably appeared to be either identical or only slightly different from the product claimed in claim 28. The effluent product of Zibrida is either basic from the second stage neutralization or, if desired for discharge into the environment, at a pH of about 6 to about 8.5, i.e., slightly basic to acidic (Zibrida, col. 3, ll. 15-20; col. 4, ll. 42-46). The product of claim 28 is a mixture of essentially neutral process water (b) and a

"continuously acidic process water" produced from at least one of several listed process steps. However, there are no amounts of (a) and (b) recited in claim 28. Therefore, the mixture of claim 28 encompasses nearly neutral waters as disclosed by Zibrida. Accordingly, the examiner has met the initial burden of establishing that the product of Zibrida would have reasonably appeared to be identical or only slightly different from the product recited in claim 28, regardless of any process limitations recited in the claim.

For the foregoing reasons, we determine that the examiner has met the initial burden of proof and appellants have failed to rebut the examiner's evidence of obviousness. Accordingly, the rejection of claim 28 is sustained.

C. The Rejection of Claim 25

Claim 25 is written in a Jepson-type format, with the improvement in wet-process manufacturing of phosphoric acid comprising using the process water of claim 18 in washing the waste gypsum filter cake. See 37 CFR § 1.75(e).

The examiner rejects claim 25 over a combination of Davister and Zibrida, with the finding that Davister discloses a wet process for making phosphoric acid and teaches that the

dihydrate cake (of gypsum) is washed with water to achieve a final by-product (Answer, page 3). The examiner concludes that it would have been obvious "to employ the [process] water disclosed at column 4, lines 42-46 of Zibrida as the gypsum wash water in the process of Davister et al because Davister et al suggest that any suitable water may be used, and the pH of the waste water effluent of Zibrida would be about 7." (Answer, page 3).

The examiner's proposed combination of references is flawed for two reasons. First, Davister does not suggest that *any* water can be used as a wash water for the gypsum filter cake but specifically teaches that "[t]he thus-formed calcium sulphate cake in filter **30** is then subjected to washing with hot water, as shown by arrow **41**." (col. 6, ll. 40-42). The examiner has not shown by convincing evidence or reasoning that the process water of Zibrida would have been considered "hot water" sufficient to wash the filter cake of Davister. Second, Zibrida teaches that the pH of the effluent of his double neutralization process is only adjusted by addition of acid "[i]f it is desired to discharge the effluent into the environment ..." (Col. 4, ll. 42-46). Accordingly, if the

references were combined as proposed by the examiner and the effluent of Zibrida was used in the process of Davister, one of ordinary skill in the art would not have been led to adjust the effluent pH since the effluent was not being discharged into the environment. Thus, the process water of Zibrida would have been at a pH of at least about 10.5, which would not reasonably have appeared to be identical with or slightly different than the nearly neutral pH process water of claim 18 as used in claim 25. *Interconnect Planning Corp. v. Feil,* 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985)("When it is necessary to select elements of various teachings in order to form the claimed invention, we ascertain whether there is any suggestion or motivation in the prior art to make the selection made by the applicant.").

For the foregoing reasons, we determine that the examiner has not established a *prima facie* case of obviousness in view of the reference evidence. Accordingly, the rejection of claim 25 under 35 U.S.C. § 103 as unpatentable over Davister in view of Zibrida is reversed.

D. Summary

The rejection of claims 18 and 28 under 35 U.S.C. §§ 102(b)/103 over Zibrida is affirmed. The rejection of claim 25 under § 103 over Davister in view of Zibrida is reversed.

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

John D. Smith Administrative Patent Judge	)	
Chung K. Pak Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
Thomas A. Waltz Administrative Patent Judge	)	

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APPENDIX

18. A nearly neutral non-scaling process water, useful in wet-process phosphoric acid manufacturing also productive of waste gases, waste gypsum solids as gypsum filter cake and slurry, and liquid drainage therefrom, containing as contaminants soluble fluorides, metal salts, and radioactive compounds, at a pH of about 2; said process water being produced by the following steps:

scrubbing some of said waste gases and combining the resulting liquid with liquid drainage from the waste gypsum; and

partially neutralizing and clarifying the combined liquids to a pH of about 4.5, removing insoluble contaminants in the underflow, then alkalizing and clarifying the clarified liquid to a pH of about 11, removing more insoluble contaminants in the underflow; and then

re-acidifying the resulting clarified decontaminated liquid to a pH of about 6 to 7.

25. In wet-process manufacturing of phosphoric acid, the improvement comprising using the process water of claim 18 in washing said waste gypsum filter cake.

28. A composite process water useful in wet-process phosphoric acid manufacturing also productive of phosphoric acid leaks, spills, and wash liquids, also waste gases, waste gypsum solids as gypsum filter cake and slurry, and liquid drainage therefrom, containing as contaminants soluble fluorides, metal salts, and radioactive compounds, at a pH of about 2; comprising a mixture of the following:

(a) a continuously acidic process water produced by at least one of the following steps: condensing some of said waste gases, and mopping up leaks, spills, or wash liquids; and

(b) a process water produced by the following steps:

(i) scrubbing some of said waste gases and combining the resulting liquid with liquid drainage from the waste gypsum; and

(ii) partially neutralizing and clarifying the combined liquids to a pH of about 4.5, removing insoluble contaminants in the underflow, then alkalizing and clarifying the clarified liquid to a pH of about 11, removing more insoluble contaminants in the underflow; and then

(iii) re-acidifying the resulting clarified decontaminated liquid to a pH of about 6 to 7.